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THE ENNS RIVER POWER SYSTEM IN AUSTRIA

[Information on graphics material is appended. Numbers in parentheses refer to
appended sources.]

The fourth set of generators of the Muehlradung power plant on the Enns River was put into operation on 18 June 1952. It has a capacity of 5,700 kilowatts and is one of the smallest of the 11 generator units on the Enns River. According to the original plans, it should have been completed at the end of 1951. Through its completion, an important step toward the complete utilization of the Enns River has been reached, and the first part of the program the Enns-kraftwerke AG set for itself at the time of its founding in 1947 has been completed. With a drop of only 9 meters, the Muehlradung plant has four generator units of 5,700 kilowatts each, the smallest capacity of any of the Enns power plants. Its maximum capacity is 23 megawatts, and its annual productivity will average 121 million kilowatt-hours annually. A total of 10.5 million kilowatt-hours there-of can be produced by the fourth unit. Construction began on 21 October 1941, and the first unit was put into operation on 23 December 1948.(1)

There are no glaciers in the 6,090-square-kilometer drainage of the Enns River, and the possibilities for reservoirs in the main and subsidiary valleys are limited. However, rainfall amounting to 1,580 millimeters, one of the highest figures in Austria, is measured annually in this region. The incline from the Gesaeuse to the place where the Enns River flows into the Danube offers the possibility of building power plants along a distance of 134 kilometers with a utilisable drop of 360 meters. Even conservative estimates give the amount of utilisable energy as 2,200,000,000 kilowatt-hours, or 4,000,000,000 kilowatt-hours including the tributaries. This is about 10 percent of the total amount of power which can be produced in Austria. In 1951, the total power produced by hydroelectric plants was 5,700,000,000 kilowatt-hours.

The first projects on the Enns River were announced 40 years ago. Despite extensive planning in subsequent years, none of the plans were realized until the construction of the four plants now in existence. Thus the Enns power plants

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were the only ones in central Europe which could be built with a uniform plan for the entire system. The Oberoesterreichische Kraftwerke AG began the construction of the Muehlradung and Staining stream-flow plants, and the Linz foundry began the Ternberg stream-flow plant in 1941. The Grossraming plant was begun in 1942.

In the chaos of the collapse of Germany, much was destroyed, but construction was begun again and by November 1946 the first unit was put into operation at Staining. On 1 August 1947, the Ennskraftwerke AG was founded with a capital of 225 million schillings, half from the Federal Government and half from the provinces of Oberoesterreich, Niederoesterreich, and Steiermark. By the end of 1948, the prewar stage had again been reached, and since then one unit after another has been put into operation until at present there are 11 units with an installed capacity of 141,000 kilowatts and an average annual production of 676 million kilowatt-hours. (2)

Present plans are for eight power plants with 23 generator units from the Gosaase to the place where the Enns joins the Danube. They would have a capacity of 321,000 kilowatts and an annual production of 1,409,300,000 kilowatt-hours. The plants are: Grossraming (241.5 million kilowatt-hours annually), Ternberg (159.2 million), Staining (174 million), Muehlradung (102 million), Rosenau (133.6 million), Losenstein (162 million), St. Pantaleon (249 million), and Hieflau (188 million). All these plants except the projected Hieflau power plant at the beginning of the Enns River system and the St. Pantaleon plant at its end are stream-flow plants without reservoirs.

The Enns power plants all have Kaplan turbines with verticle shafts. Mounted directly above them are the three-phase synchronizing generators which transform the generator voltage (6 kilovolts) into that of the grid (110 kilovolts). The most modern safety and alarm devices assure the system the greatest protection.

A load dispatcher in Steyr manages all the plants. Remote signaling equipment and telemeters instantly inform him of the production, water supply, and intake of the power plants. Therefore, he is in a position instantaneously to make the production of the Enns plants conform with the requirements of the power grid.

The Enns power system is linked to the Ernsthofen-Hessenberg north-south 110-kilovolt line. The Ernsthofen transformer station, on the bus bars of which all the Enns electricity is collected, also connects with the 220-kilovolt Vienna-Kaprun line and the 220-kilovolt line which goes into the German Federal Republic. In the foreseeable future, the summer energy of the Enns power plants will not be entirely utilized by Austrian consumers and will in part be exported. (3)

Plans are being formulated for the St. Pantaleon power plant at the place where the Enns joins the Danube and for the Losenstein plant, which is to fill in the gap between Grossraming and Ternberg. Together with the Rosenau plant, which was begun in the fall of 1951, the power system from the Gosaase to the confluence of the Enns with the Danube will be complete. (2)

SOURCES

1. Salzburg, Salzburger Nachrichten, 17 Jun 52
2. Ibid., 19 Jun 52
3. Vienna, Die Presse, 12 Jul 52

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GRAPHICS MATERIAL AVAILABLE

Requests for copies of, or further information on, the photographs described herein should be addressed to Graphics Register, CIA, by referring to report number and item number.

1. Location: Austria, Land Oberoesterreich, Bezirk Steyr, Grossraming, Grossraming power plant

Caption and Description: "Grossraming Power Plant Utilizes 141 Cubic Meters of Water per Second With a Drop of 24 Meters." Rear view of the plant from downstream

Photograph Description: Size, 5 x 2 inches; fair; newsprint

Source: Die Presse, Vienna, 12 July 1952, page 20

Repository of Source Document: CIA

2. Location: Austria, Land Oberoesterreich, Bezirk Steyr, Ternberg, Ternberg power plant

Caption and Description: "The Ternberg Power Plant Utilizes 141 Cubic Meters of Water per Second With a Drop of 15.5 Meters. The Grossraming and Ternberg Plants Together Have an Annual Production of About 400 Million Kilowatt-Hours, of Which 144 Million Is in the Winter." View from the left bank looking upstream, showing the dam and the section housing the machinery

Photograph Description: Size, 5 x 2 inches; fair; newsprint

Source: Die Presse, Vienna, 12 July 1952, page 20

Repository of Source Document: CIA

3. Location: Austria, Land Oberoesterreich, Bezirk Linz, Kronstorf-Ernsthofen, Muehlrading power plant

Caption and Description: "The Muehlrading Power Plant Has an Annual Production of 102 Million Kilowatt-Hours." Oblique view from left bank looking upstream

Photograph Description: Size, 4 x 3 inches; fair; newsprint

Source: Die Presse, Vienna, 12 July 1952, page 20

Repository of Source Document: CIA

4. Location: Austria, Land Oberoesterreich, Bezirk Steyr, Dietach-Haidershofen, Staning power plant

Caption and Description: "The Staning Power Plant is Shown From the Lower Side; It Is the Next Largest Plant After Grossraming and Has an Annual Production of 174 Million Kilowatt-Hours." View from the right bank looking upstream

Photograph Description: Size, 4 x 3 inches; fair; newsprint

Source: Die Presse, Vienna, 12 July 1952, page 20

Repository of Source Document: CIA

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